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ABSTRACT

GRADES OR AGES: Grades 4, 5, and 6. SUBJECT MATTER: Sensory perceptions, the organs involved, and eye and hearing care. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into six different sectional steps organized around a gradual, ascending understanding of the sense organs. OBJECTIVES AND ACTIVITIES: The material is divided into columns of reference-to-be-given, major understanding and concepts intended, suggested teaching aids, and supplementary information for teachers. INSTRUCTIONAL MATERIALS: Lists of books, pamphlets, films, and filmstrips are appended. STUDENT ASSESSMENT: None provided. OPTIONS: None provided. (JA)

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HEALTH CURRICULUM MATERIALS
Grades 4, 5, 6

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STRAND I, PHYSICAL HEALTH
SENSORY PERCEPTION

The University of the State of New York/The State Education Department
Bureau of Elementary Curriculum Development/Albany 12224

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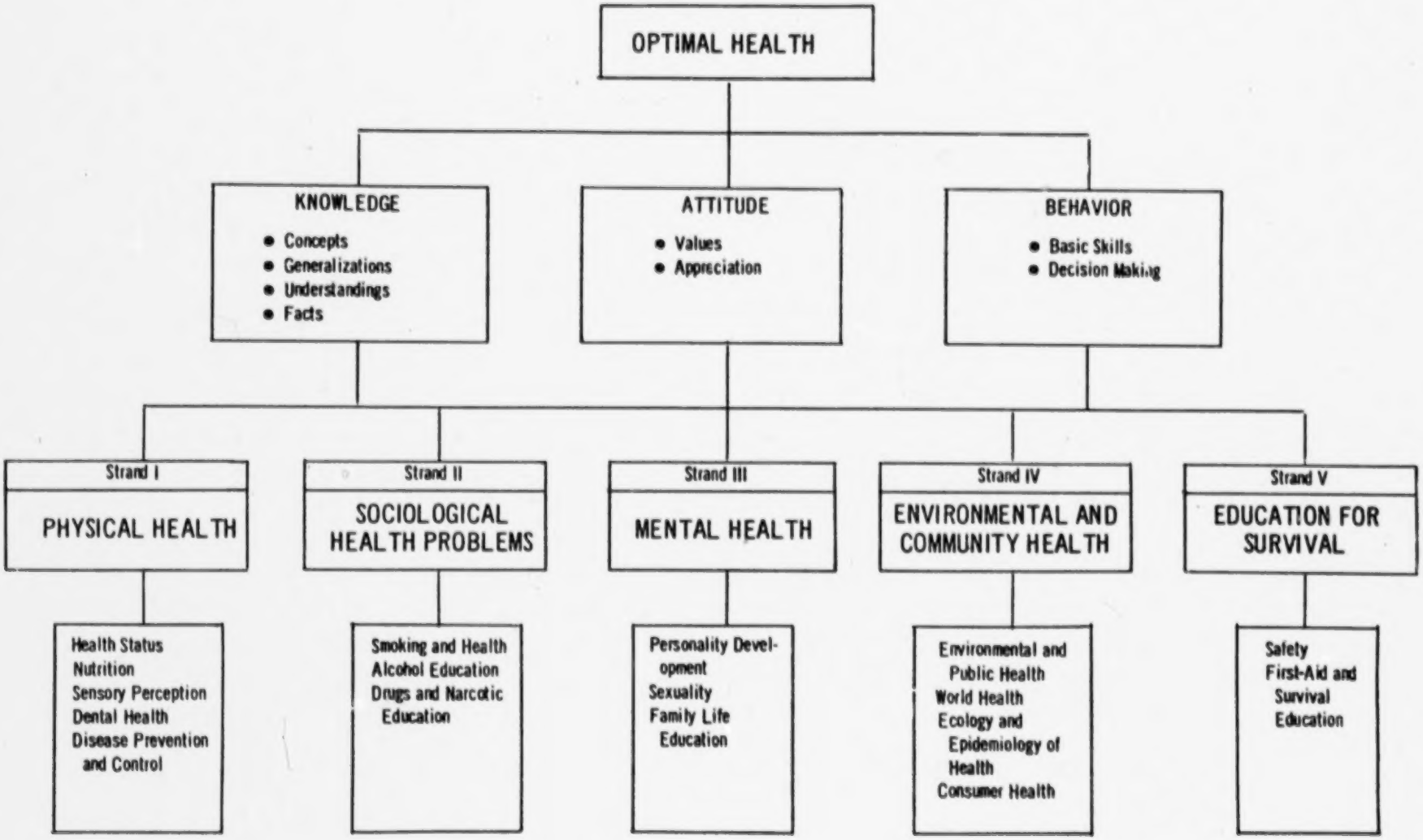
OPTIMAL HEALTH
KNOWLEDGE
• Concepts
• Generalizations
• Understandings
• Facts
ATTITUDE
• Values
• Appreciation
BEHAVIOR
• Basic Skills
• Decision Making
Strand I
PHYSICAL HEALTH
Health Status
Nutrition
Sensory Perception
Dental Health
Disease Prevention and Control
Strand II
SOCIOLOGICAL HEALTH PROBLEMS
Smoking and Health
Alcohol Education
Drugs and Narcotic Education
Strand III
MENTAL HEALTH
Personality Development
Sexuality
Family Life Education
Strand IV
ENVIRONMENTAL AND COMMUNITY HEALTH
Environmental and Public Health
World Health
Ecology and Epidemiology of Health
Consumer Health
Strand V
EDUCATION FOR SURVIVAL
Safety
First-Aid and Survival Education

STRAND I

PHYSICAL HEALTH
SENSORY PERCEPTION

OUTCOMES - 4,5,6

Children in the 4th, 5th, and 6th grades should:

1. Know how our senses help us perceive our surroundings.
2. Develop good habits for the care of the special sense organs.
3. Understand the general structure and function of the organs.
4. Know the kinds of sensory defects and their care.
5. Realize the importance of periodic testing for vision and hearing.
6. Understand the relationship between general health and sensory perception.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
1. The Senses	The senses of the body help us to adjust to the world around us.	Discuss the questions: 1. What kinds of messages do our senses bring to us about our surroundings? 2. How many senses are there? 3. Can our senses grow throughout life?	Because the senses of sight, hearing, touch, taste, and smell are extremely important in our adjustment to our environment, they are known as the special senses.
	Information about the world around us comes through our senses. Although we commonly speak of five senses, there are others. Your ability to use your senses can grow throughout your life.	Show a film on the senses.	Sight includes the ability to see light, color and form. Hearing includes the ability to detect differences in pitch and intensity of sound. Nerves of smell can detect over six thousand different odors. Sensation of taste includes sweet, sour, bitter, and salty. Special nerves in the skin are sensitive to heat and cold, pressure and pain. We have a sense of position. We have a sense of vibration and discrimination. A mechanism in the inner ear gives us our sense of equilibrium or balance. Because of the nature of the brain a human being has vivid, rich interpretations of the world.

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			Special kinds of nerve endings are affected by light, sound, odors, taste and touch.
II. Interrelationship of Senses	The brain receives messages from all the sense organs continually.	Make a comparison of the senses involved in radio and television.	When listening to radio, the only sensations received are of sound and your impression is based on what you hear.
			Television adds sight to the sound. The mental image is clearer. Color television adds color to the sight and the sound and the mental image is even more distinct and true to life.
	The more sensations we receive, the clearer the mental picture.		
	Our ability to see and interpret depends on proper development and function of our bodies.		Motor coordination and spatial awareness are intricately interwoven with the special senses.
III. The Special Senses A. Vision, the sense of sight	Vision is one of our most valuable senses. The sense of sight tells you a great deal about the world about you.	Have children think about what they hope to do when they are grown up. Discuss the importance of vision to their selected vocations. i.e., big league ball player, teacher, nurse, doctor, lawyer, engineer, chef, housewife, carpenter, mechanic. Other adult roles	

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		that could be good discussion on the importance of sight are mother and father.	
		Have children look around the classroom, then discuss how they use their vision in learning.	To write, to read, to distinguish color, to recognize people are some examples of the use of vision.
		Consider the ways that a blind person is handicapped and dependent upon others.	Explain how a blind person is dependent on his other senses, and the senses of other people or animals, such as a seeing eye dog.
		Discuss the importance of good vision in sports, reading, movies.	
1. The parts of the eye	The eye is the organ of sight. It picks up light waves and sends them to the brain to form mental pictures. The eye is part of the nervous system.	Using a model of an eye, point out the structure of and discuss functions of cornea, iris, lens, choroid, sclera, retina, aqueous humor, vitreous humor, optic nerve, eye muscles, blood vessles.	

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2. How we see	The process of seeing starts with reflected light.	Discuss the following questions: 1. How do we see?	The process of seeing starts with light, reflected from an object to your eyes.
	The light waves go through the pupil of the eye to make an image on the retina.	Show a film to demonstrate a reflection and a refraction of light.	
	The optic nerve sends messages from the retina to the brain about the image.		
	The brain gives meaning to what the eyes see.	2. How do we know what we see?	When the image reaches the retina it takes a picture of it which is upside down. You will get two pictures-one for each eye. The nerve cell of the retina send messages to the brain by the optic nerve, and the brain blends the two pictures into one and makes the upside down picture right side up. The brain tells you what the eyes see.
	The eye can be compared to a camera.		

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		3. What is "normal" vision? Show a film on structure and function, defects, and care of the eyes.	When the light rays reflect directly on the retina, the eye has normal vision.
3. Two common defects of vision	Some eyes are irregular in size or shape and therefore have refractive errors which lead to poor vision.	Use drawings on the board to demonstrate how a lens focuses rays of light on the retina. Demonstrate refractive errors.	
a. Near sightedness (myopia)	A person with near-sighted eyes can see objects nearby well, but cannot see faraway objects clearly.	Explain near-sightedness and far-sightedness.	When an eyeball is too long from the front to back or with too thick a lens, the picture is focused in front of the retina.
	Glasses of the right kind can make the near-sighted eye see normally.	Use convex and concave lenses to illustrate how light rays can be concentrated or diffused. Compare to the lens of eye glasses.	Glasses can be worn that can bend the light rays to focus normally on the retina.
b. Far-sightedness (hyperopia)	A person with far-sighted eyes can see faraway objects clearly but cannot see near objects clearly.		When an eyeball is too short from front to back, or the lens too thin, the picture is focused behind the retina, theoretically. Glasses can be worn that can bend the light rays to focus normally on the retina.

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4. Color perception	Color perception is our ability to see color. Color helps to make our surroundings interesting, exciting and informative. The use of color helps to keep us safe.	Have the children give examples of color. Explain what color tells us. Have children discuss how color is used for safety.	The examples of color are seen in: - the colors in nature as blue sky, green grass, color of birds and flowers - the beauty of color T.V. or color movies. We learn that - red means danger - yellow means caution - green means safe - red is used for fire trucks which signals the right of way in traffic - red flashing light on an ambulance-right of way in traffic We see color for safety in - the yellow school bus - the yellow lines on the street for pedestrian traffic - the yellow lines on the road used to indicate areas where it is not safe to pass another car - red exit signs in all public buildings - red, yellow and green traffic lights - red clothes worn by hunters.

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a. How we see color	Varying shades are visable depending on presence and intensity of light.	Darken the classroom and have children note the change in the color of various objects. Have children go into a dark room, (closet or lavatory) and note that they cannot see the color of their clothing or the surroundings in complete darkness.	As we darken the room all colors appear to turn to shades of grey.
	Color is a property of light.	Use a picture or drawing to show the visible spectrum, pointing out that the red rays are the longest, the violet, the shortest.	The rainbow of colors was visible because of sunlight shining through the raindrops which give a prism-like effect. They may have noted the same phenomena resulting from the spray from a garden hose in bright sunlight.
	The luminous spectrum (visible light) is but one part of the whole spectrum of radiation.		Physicists have, since the time of Newton, discovered that the whole spectrum of radiation extends from the long radio waves on the one hand, through infrared to visible light and then to the short ultraviolet and x-rays.
	Some parts of the spectrum of radiation may be harmful to our eyes.	Demonstrate how to ignite a piece of paper by focusing sunlight through a magnifying glass.	The eye contains a lens much like the magnifying glass. The retina of the eye could easily be burned if improperly protected

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			while viewing an eclipse of the sun. The retina contains few nerve endings and is, therefore, insensitive to a burn. Skiers and mountain climbers must wear a special type of protective goggles because snow at high altitude reflect ultra rays (as well as visible light) which can cause an irritation of the eye. Such rays are not reflected from sand or water at the beach. In this case, it is reflected glare which causes discomfort.
	When light falls on an object, some of the light is reflected, some is absorbed. The color that we see is the result of the reflection and/or absorption of light	Have children feel various objects which have been placed under direct rays of the sun.	A black object will feel hot because black absorbs all the light that falls on it. A white object will feel cool because white reflects all light that comes to it. A red object will feel cooler than a black object but warmer than a white object because it absorbs all of the light except the red rays of the spectrum.
		Explain the principles of human color perception.	The human being appreciates color because of a chemical change that takes place in the cone cells of the retina.

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		Demonstrate the three primary colors by shining the light from three flashlights onto a white screen. Place a piece of green glass in the path of light from one flash light, red glass in another, and blue in another. The light from the three flashlights that overlaps will appear white.	In light, the three primary colors are red, green, and blue.
b. defects of color perception	Some people are unable to see colors normally, which can be hazardous.	Discuss color perception deficiencies: a. total color blindness is extremely rare, the person sees all colors in shades of grey. b. partial color blindness-may be-red-weak; all shades of red will appear to be blue-green. In green-weak, all shades of green will appear to be reddish-blue. In blue-weak, all shades of blue will appear to be yellow (yellow is a combination of green and red.)	

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		Explain the sex-linkage of color perception deficiencies through the female carrier. (Reference - a science or biology textbook) This can be correlated with a science unit or reported as special project.	One out of every 25 males and one out of every 200 females are deficient in color perception. A color perception test is a required part of the school health appraisal program. One test is given, usually in the 4-6 grade age group. The results are recorded with both health and guidance data.
c. Color perception tests	Our ability to distinguish colors accurately can be determined by a standardized screening test procedure.	Describe the AOC (American Optical Company) color perception test used in the school situation. Explain the child's role in the procedure. The art instructor could assist in the unit on color perception.	
5. Visual acuity tests	The distance acuity screening procedure is used to test visual acuity.	Demonstrate the Snellen Test. Explain how it is based on a standardization of visual acuity. Relate the symptoms of eye fatigue to the need for an eye examination.	Although the short (farsighted) eye may accomodate to form a focus, the eye gets tired from constant use. The classroom teacher can be very helpful in understanding and assisting in the Vision Test Program.

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	A vision test identifies decreased visual acuity. An eye examination identifies the cause of the decreased visual acuity.	Draw on a child's experience of having an eye examination and show that the eye examination is an objective one.	The objective nature of a professional eye examination would preclude the possibility of the child's being able to pretend he cannot see because he wants to wear glasses.
	Efficient use of vision requires correction to normal by the wearing of glasses. Wearing glasses or contact lenses is an accepted procedure in our society.	Explain that the wearing of glasses helps the eye perform the normal function which it was intended to do.	
6. The development of vision	The eyes have usually attained full growth and function by the age of 18.	Explain that having one's vision tested and wearing glasses, if needed, are important in growing up.	By the age of nine, the child's eyes are ready for detailed vision. Eye-hand coordination is more developed. By the age of 18, the eyes have attained full growth and functioning is completely developed. More near-sightedness appears as the eyes attain full growth. Manual skills are better developed and there is better coordination of all muscles.
7. Care of the eyes and vision a. Eye difficulties	An eye specialist should be consulted periodically to check for any eye difficulties.	Discuss the following symptoms of possible eye difficulties: 1. Frowning, rubbing eyes, attempting to brush away a blur.	The teacher can be helpful in being constantly alert for the signs of eye difficulties in pupils. A child's mannerisms will indicate that something is wrong.

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		2. Tilting or thrusting head forward when reading 3. Close work or reading is difficult or tiring. 4. Blinking, or crying when doing close work	
	Eye difficulties may involve either sight or visual perception.	5. Sensitive to light 6. Eyelids are red-rimmed and encrusted; eyes swollen and watery. 7. Non-participation in games requiring distant vision. 8. Complaining of nausea, dizziness or headache following close work.	Some children have normal vision but have problems in visual perception.
b. First aid for eye injuries.	We should guard our eyes against accidents.	Review the causes of eye injuries in the K-3 grade curriculum.	There are three general first aid rules in case of injury. 1. Flush eyes with plenty of water. 2. No rubbing. No self treatment. 3. Immediately obtain medical care.
		List various ways of preventing eye injuries such as the use of safety glasses in certain hazardous occupations.	
c. Eye health and general health	The health and functioning of the eye is dependent	The classroom teacher can relate the signs of general	

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	upon the state of general health.	health and fatigue to good and poor eye health. Discuss the rules for good general health including: a well balanced diet, adequate rest and exercise, good habits of personal cleanliness, medical care for illness.	
	A disease that affects the body may affect the eye.	Use an eye model to demonstrate the anatomy of the eye and its relation to the sinuses, blood vessels, brain, nose, etc.	Encourage rules of fair play in all types of games to ensure the protection of all the participants.
	The standards for good general health are the standards for eye health.		
E. Hearing, the sense of sound.	Our sense of hearing also helps tell us about the world around us.	Discuss the problems that a person has to face who has never heard sounds or who has lost his hearing.	Music, conversation, television, radio and the sounds of nature help us enjoy life.
	We learn to speak from what we hear.		Speech is our means of communication and we learn speech by hearing sounds.
	We are safer because we can hear.		The warning sounds of danger are important to hear a car horn, train whistle, fire siren.
1. How we hear	The ear is the organ of hearing. It picks up and transmits sound to the brain which tells us what we hear.	Secure a model, or diagram of the ear and discuss its parts. Review material from biology or science course.	

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			The ear is composed of three parts, the outer, middle and inner ear.
	Sound waves help us hear.	Demonstrate how sound waves travel by securing a tuning fork. Strike it gently and quickly place it in a pan of water so that the ends touch the water. It will make a humming sound because the prongs vibrate. The water will move with the vibration. Use the animated drawings of the chart by Sonatone to illustrate how we hear. Show the filmstrip "What is Sound?" McGraw Hill. Show the film "Hear Better, Healthy Ears" Coronet. Explain the function of the eustachian tube.	The outer ear is shaped to collect sound waves and send them down a tube to the eardrum which is a membrane stretched tightly across the tube. When soundwaves strike the eardrum it vibrates back and forth. There are three small bones in the middle ear, the ossicles, which transmit the sound waves to the cochlea of the inner ear. The cochlea, filled with fluid has about two thousand nerve endings. These pick up the sound waves and send them to the auditory nerve, which send them to the brain. The hearing part of the brain tells you about the sound message. The ear canal is a curved tunnel, shaped so that objects cannot easily get into it and injure the inner parts. It contains wax which helps to keep it clear and lubricates the canal and eardrum.

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			A tube, the eustachian tube, leads from the middle ear to the throat and equalizes pressure on each side of the eardrum. The throat end of the tube opens when you swallow.
		Have the students discuss situations in which their ears hurt or "popped" when swimming or riding in a car.	
2. How the ear helps maintain balance.	The semicircular canals in the inner ear help maintain balance.	Explain the maintenance of balance. Give some examples of loss of balance (swinging, sudden ascent or descent in an airplane or on a ship).	The inner ear contains semicircular canals, containing fluid which moves when you change positions. Dizziness may be caused by sudden changes of direction or position. The inner ear is the organ which helps restore equilibrium.
3. Hearing defects	Defects of the ear block the sound waves from reaching the brain.	Explain defects of the ear which result in loss of hearing.	Defects of the outer ear are seen in impacted wax which hardens over the eardrum. Defects of the middle ear may result from an infection which travels up the eustachian tubes to the ear during a cold or sinus infection or diseased tonsils and adenoid (enlargement of tissue in back of nose and throat).

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			An infection can easily travel from the nose and throat to the middle ear. Defects of the nerve endings in the inner ear can also be caused by loud sounds, blow to the head, or deterioration due to the normal aging process.
4. Care of the ears and hearing.	Care must be taken to avoid injury to the ear which is a delicate organ.	Summarize the main points in caring for the ears and the reasons for it.	Care of the ear includes the following: 1. Objects put into the ear could block the ear canal. Probing into the ear with bobby pin or pencil creates the danger of breaking the eardrum. 2. Hardened or impacted wax should be removed by a doctor who may flush it out with warm water. 3. Blowing the nose hard changes the air pressure and forces infectious material into the middle ear. 4. "Cold germs" can spread from the nose and throat into the middle ear. 5. Blows on the ear can damage the delicate nerve endings. 6. Swimming should be done in clean, safe water. Remove water from the ears promptly.

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			7. Extremely loud noises can break the eardrum or damage the nerve endings. 8. When hearing loss is suspected, go to a doctor for a hearing test.
5. Tests of hearing.	Many people do not know they are hard of hearing. We get used to what we hear and think it is normal. There is a relationship between the ability to hear and the development cf. speech and language. There are several ways to measure hearing.	Guest Speaker- The School Nurse-Teacher Discuss the Whisper Test, The Watch Test, and the pure tone audiometer screening test. Science lessons can be correlated with a demonstration of sounds and their measurement.	The Whisper Test is given by having the tester stand behind a subject and asking him to repeat a sentence which the tester whispers into the left and right ear. The Watch Test is given by placing a watch at outer ear and asking subject if he can hear it tick. Gradually move it away until the sound is lost.

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			The Pure Tone Test should be demonstrated by a trained person. An audiogram can be made and explained to the class.
	We hear automatically but the art of listening must be developed.		An audio-meter is a machine that measures hearing. It functions like an electrified tuning fork. It is the most accurate measure of hearing.
C. The Sense of Taste and Smell	The tongue is the organ of taste.	Explain and locate the four areas of taste sensations.	The taste buds are groups of cells with slender tips. When these tips touch the foods in the mouth they send a message to the nerve fibers leading to the brain which tells you whether the taste is sweet, sour, salty, or bitter. There are also tastebuds in other parts of the mouth. Some are located in the roof of the mouth and others are located in the cheeks. The largest group of tastebuds is located in the tongue. There are about 9000 taste buds in the mouth.
1. The tastebuds in the tongue	There are groups of nerve endings in the surface of the tongue that allow you to taste the things you put into your mouth.	Experiment in the class with tasting lemon, sugar, salt, and vinegar. Describe the sensations. Study diagrams of taste buds in a science or health text.	1. The tastebuds for sweetness are at the tip of your tongue. 2. The tastebuds for bitterness are at the back of your tongue.

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			3. & 4. The tastebuds for sourness and saltiness are along the sides of the surface of your tongue. The chemicals in the foods must be in solution (mixed with saliva) to be tasted. The sensitivity to pain, heat, and cold on the tongue protects from swallowing things that are too hot, cold, irritating, or harmful.
2. The cells of smelling sensations in the nose.	The nose is the organ for the sense of smell. The sense of taste and smell are closely related.	Experiment - Blindfold one pupil. Have another place a piece of onion under his nose, at the same time feeding him a piece of carrot. Explain the reaction.	
3. How we smell substances.	We smell objects because particles break away from the substance, enter the nose, and reach the cells. A message is immediately sent to the brain, which tells us what we smell.	Have students identify smells of substances while blindfolded.	
	The sense of smell becomes dull to odors to which we have become accustomed.	Give some instances where we become used to odors.	When we first smell an odor it seems strong, but we get used to an odor in a short time. People in a poorly ventilated room do not notice it, while someone coming in from the fresh air outside will notice it.

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			This is also true of body odors. The person with an offensive body odor will not know it himself.
5. Care of the organs of taste and smell	The sense of smell may warn us of dangerous substances in our environment.	List substances home that can be dangerous - ammonia, chlorox, paints, paint cleaners, fly sprays, etc.	Various chemicals and gases may be recognized and avoided. Animals use their sense of smell to warn them of danger and to identify other animals.
	The nerve endings of taste and smell are delicate and can be injured by repeated exposure to strong chemicals.	Explain how the sense of taste and smell can be dulled or permanently damaged.	Care of the organs of taste and smell follow the rules for good general health, with an emphasis on avoid extensive and excessive exposure of the sensory calls to strong chemicals, liquid, or gaseous.
D. The Skin Sensations	The skin is the organ of the sense of touch.	Explain by diagrams or text the structure of the skin.	Identify the epidermis, dermis, sweat glands, blood vessels, nerve endings.
1. The structures of skin	There are certain nerve endings in the skin that give four sensations: pressure, pain, heat, and cold.	Show and discuss a film.	The epidermis is made up of layers, the outer cells of which are dead cells. The upper part contains no nerve endings. The lower part has live, growing cells in it. There are a few nerve endings in this part of the epidermis.

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2. The four skin sensations	The nerve endings carry messages to the brain which tells us what we feel.		
	Different kinds of nerve endings are in different places in the skin.		The nerve endings nearer the surface are the most sensitive. The dermis, the inner layer of the skin, is the true skin. It contains many blood vessels and nerve endings which receive skin sensations.
a. Pressure, touch and pain	Pressure and touch are closely related. Firm touch becomes pressure, and pressure can become pain.	Demonstrate the use of Braille for the blind.	When you place your hand lightly on an object, your first sensation is touch. When you press harder, you sense pressure. If the surface is rough, sharp or the pressure is strong, you feel pain.
b. Heat and cold	Separate nerve endings register heat and cold.	Demonstrate with ice and heat on the skin in different areas of the body that some areas are more sensitive to certain stimuli than others.	Our sense of heat and cold protects us. If we had only one temperature sensation, we would not adjust to changes in our environment.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
3. The skin sensation	The skin sensations, by working with each other, and with other senses, bring us pleasure in living and help protect us from danger.		
IV. Sensory perceptions and general health	Since the sense organs act as receiving stations for impressions of the world around us, we should care for them well.	Review the following rules for good health to the care of our senses:	
		1. Get plenty of sleep.	Rest allows the cells to repair themselves after use.
		2. Eat a variety of nourishing foods regularly.	A well balanced diet provides the energy for the cells in the sense organs to do their work.
	The body works as a unit. All parts are interrelated.	3. Get plenty of exercise, preferably outdoors.	Exercise and fresh air stimulates the circulation of the blood, bringing more food and oxyen to cells so they can do their work.
		4. Protect the eyes, ears, nose, mouth, and skin from injury or disease.	Learning about, and following the rules for protecting the special senses from injury or disease will conserve our senses.

REFERENCE	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		5. Get regular medical checkups.	Going to the doctor when a defect to the senses is noticed will assure prompt treatment. Regular check-ups will prevent defects.

CHART 1

RECOMMENDATIONS OF THE STATE EDUCATION DEPARTMENT
FOR TESTING VISION *

1. Parents should be encouraged to provide a complete professional eye examination for each child prior to his entrance to school and periodically thereafter as recommended by the eye specialist.

2. Schools should use the Snellen Distance Acuity Test for all vision screening purposes.

3. A convex lens screening test should be given to all first grade children except those who wear glasses and those who fail the Snellen Distance Acuity Test.

4. Parents of children having a persistent reading or learning disability should be encouraged to provide a complete diagnostic eye examination for the child.

5. The signs of eye difficulties in children, as observed by the school physician, the classroom teacher and the nurse-teacher should be weighted when evaluating the vision and eye health status of each child.

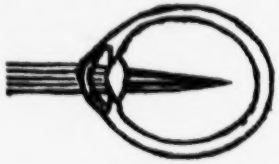
6. Responsibility for conducting all school vision screening and follow through activities should be assigned to the school nurse-teacher.

*Testing The Vision of School Children. A Position Paper. The University of the State of New York. The State Education Department. Bureau of Health Services.

CHART 2

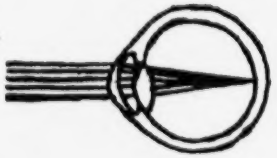
THE REFRACTION OF THE EYE
AND
CORRECTION OF REFRACTIVE ERRORS

The Myopic Eye-(Elongated Eye)



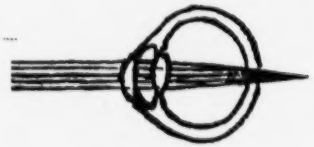
Parallel rays of light focus in front of the retina (distant objects are not in sharp focus)

The Normal Eye



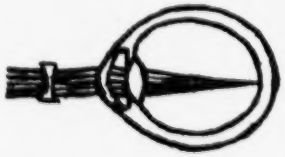
Parallel rays of light (from a distant object) are focused on the retina

The Hyperopic Eye (Short Eye)



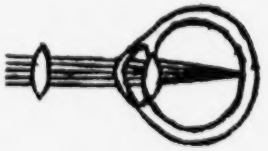
Theoretically, parallel rays of light come to a focus behind retina.

The Myopic Eye
(with minus lens added)



Parallel rays are brought to a focus on the retina, thus distant objects are in sharp focus

The Hyperopic Eye
(with plus lens added)



Parallel rays are brought to a focus on the retina, thus distant objects are in sharp focus.

CHART 3

RECOMMENDATIONS OF THE STATE EDUCATION DEPARTMENT
FOR TESTING HEARING

PURE TONE AUDIOMETER SCREENING TESTS

RECOMMENDATIONS FOR TESTING

New York State Education Law (Section 905, Article 19) requires that each pupil receive an annual hearing test. The approved screening procedure is a sweep check test, administered individually by means of a pure tone audiometer. Unsatisfactory results on the sweep check test indicate the need for a threshold acuity test.

At the beginning of the school year, the school nurse-teacher will establish a testing schedule for all pupils. The following priorities for sweep check testing should be considered:

1. All pupils enrolled in kindergarten, grades one and three.
2. All new entrants to school who have no record of a previous test.
3. Pupils discovered by a previous test to have hearing impairment.
4. Pupils exhibiting symptoms of emotional disorder or learning disability.
5. Pupils having speech difficulties.
6. Pupils returning to school after any illness with possible significance for hearing health.
7. Pupils suspected of having hearing problems, referred by teachers, parents or physicians.

REFERENCES (Grades 4, 5, and 6)

It is suggested that teachers preview their materials before using; they have not been previewed by the State Education Department.

BOOKS

Adler, Irving & Adler Ruth. Your eyes. New York. The John Day Co. 1963. (P)

Your ears. New York. The John Day Co. 1963. (P)

Aliki. My five senses. New York. Thomas Y. Crowell Co. 1962. (P)

Anderson, D. S. Junior science book of sound. Champaign, Illinois. The Garr Press. 1962. (P)

Brinton, Henry. Sound. New York. Golden Press. 1966. (P)

Cole, E. L., Cole, E., Appleyard L. & Reed C. Living today. Health Safety Science 5, 6. Wichita, Kansas. McCormick Mathers Publishing Co., Inc. 1958. (Workbook-P)

Cramet, Charles. Light and sight. New York. Abelard Schuman. New York. 1963. (Light and Optics Adv.-P)

Crinkshank, W. M. ed. Psychology of exceptional children and youth, Ind. Ed. Englewood Cliffs, New Jersey. Prentice Hall, Inc. 1963. (T)

Davis, Hallowell & Silverman, S. R. Hearing and deafness; rev. ed. New York. Holt, Rinehart and Winston, Inc. 1964. (P)

Ferauolo, R. V. Junior science book of light. Champaign, Illinois. Garrard Publishing Co. 1961. (P)

Fryer, Judith. How we hear; the story of hearing. Minneapolis, Minnesota. 1962 (P) (Medical Books for children)

Healy, Frederick. Light and color. Golden Press. 1966. (P)

Kidd, O. H. & Revoire, J. L. Perceptual development in children. New York. International Universities Press, Inc. 1966. (T)

Mann, Ida, M. D. & Perie, Antoinette. The science of seeing. Available from Sportshelf. P. O. Box 634. New Rochelle, New York. (P)

Montgomery, E. R. Alexander Graham Bell. Champaign, Illinois. Garrard Publishing Co. 1963. (P)
(A discovery book)

Muller, C. C. & Rudolph, Mae. Light and vision. New York. Time, Inc. 1966 (P) (Life science library)

Palmer, C. E. Speech and hearing problems; a guide for teachers and parents. Springfield, Illinois.
Charles C. Thomas Publishers. 1961. (P)

Sands, George, M. D. Why glasses; the story of vision. Minneapolis, Minnesota. Lerner Publications. 1955.(P)

Showers, Paul. The listening walk. New York. Thomas Y. Crowell Co. 1961 (P)

Vail, Derrick, M. D. The truth about your eyes. The Crowell-Collier Publishing Co. 1962. (T.P)

Wheatley, G. M. & Hallock, G. T. Health observation of school children; 3rd ed. New York. McGraw-Hill Book
Co., 1965. (T)

White, Terry Ann & Lietz, Gerald, S. M. D. Windows of the world. Champaign, Illinois. Garrard Publishing Co.
1961. (P)

PAMPHLETS, BULLETINS, CHARTS

Bureau of Health Services, University of the State of New York, State Education Department. Albany, 12224.

Testing the vision of school children. A position paper. 9 pages
The Snellen test for visual acuity. Instruction for administration
Information bulletin. Color vision and testing for color perception
Leisure time and eye accidents
School lighting and vision
Educational aspects of the conservation of vision program
The school eye health program - 7 pages
Why and how the Snellen Test does the job of visual testing in schools
The school program for the conservation of hearing
Pure tone audiometer screening tests

New York State Department of Social Welfare. Eye Health Service. Commission for the Blind. 270 Broadway,
New York. First aid to save sight

Better vision Institute. What is 20/20 vision. 650 Fifth Avenue, New York.

Sonotone Corporation. Of the human ear and charts of the ear and hearing. Elmsford, New York.

Canfield, Norton. You and your hearing (no. 315) New York. Public Affairs Pamphlet. 1961.

Marco Company, Inc. 21 N. Third Street, Minneapolis, Minnesota. 55401 (Current Literature)

Rennei, Eleanor. The hard of hearing child and his teacher. New York. League for the Hard of Hearing New York, N. Y. 1964.

Zenith Radio Corporation. Hearing Aid Division. 6501 Grand Avenue. Chicago, Ill. 50635

FILMS

Hear better, health ears. Coronet
See better, healthy eyes. Coronet
Your ears. Young America
Your eyes. Young America
How the eye functions. Knowledge Builders
Five senses, Association Films
Our senses; what they do for us. Coronet
Eyes and vision. E. B. E. C.
Sound and how it travels. Basic Physical Science Program New York State
Your ears. Mc Graw-Hill
Sound for beginners. Coronet
Health skin. Coronet
Sense perception. Part I, Part II. M. I.

FILMSTRIPS

What is sound? Mc Graw-Hill
You and your ears. E. B. E. C.
You and your five senses. E. B. E. C.
Your nervous system. Mc Graw-Hill
Your sense of smell and taste. E. B. E. C.
Your sense of touch. E. B. E. C.

STUDY PRINT

How the eye works.
Parts of the body. E. B. E. C. Series no. 5900
The ear
The nose and throat

CURRICULUM OUTLINE

New York State Elementary Science Curriculum. State Education Department. Albany. 12224.

ORGANIZATIONS AND AGENCIES

Alexander Graham Bell. Association for the Deaf, Inc. 1537-35 St., N. W. Washington, D. C.
American Hearing Society. 919-18., N. W. Washington, D. C.
American Medical Association. 535 N. Dearborn Street, Chicago, Illinois.
American Speech and Hearing Association. 1101 Connecticut Avenue, N. W. Washington, D. C.
Better Vision Institute. 650 Fifth Avenue, New York.
Blind Work Association. 18 Court Street, Binghamton. 13901.
Bureau of Health Service. State Education Department. Albany. 12224.
Bureau for Physically Handicapped. State Education Department, Albany. 12224.
League for the Hard of Hearing, 71 West 23 Street, New York. 10010 .
New York State Department of Health. Bureau of Medical Rehabilitation, Albany. 12224.
New York State Department of Social Welfare. Commission for the Blind - Eye Health Services, 270 Broadway.
National Society for the Prevention of Blindness. 16 East 40 Street, New York.
The John Tracy Clinic. 806 West Adams Boulevard, Los Angeles, California. 90007.
United States Department of Health Education and Welfare. Washington, D. C.
American Optical Company